

## **REMARKS**

### **I. Status of Claims**

Claims 13-34 are pending in the application. Claims 13, 23, 33, and 34 are independent.

Claims 13-16, 23, and 32-34 stand rejected under 35 USC 102(e) as allegedly being anticipated by Kawashima et al. (USP 6,851,258) (“Kawashima”).

Claims 17, 20, 24, and 27 stand rejected under 35 USC 103(a) as allegedly being unpatentable over Kawashima as applied to claims 14, 15, and 16 in view of Tashiro et al. (USP 6,622,480) (“Tashiro”).

The Applicant respectfully requests reconsideration of these rejections in view of the following remarks.

### **II. Allowable Subject Matter**

Claims 18, 19, 21, 22, 25, 26, and 28-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of their base claims and any intervening claims.

### **III. Applicant’s Statement of Substance of Examiner Interview**

In compliance with M.P.E.P. 713.04, the Applicant provides this Statement of Substance of Interview concerning the interview conducted on September 1, 2009 with Examiner Nguyen, and the Applicant’s representative Christopher Wheeler.

- (A) Exhibits. N/A.
- (B) Claim(s). 13, 23, 33 and 34.
- (C) References Discussed. Kawashima.
- (D) Amendments. N/A.
- (E) Principal arguments of Applicant. The Applicant argued that Kawashima does not disclose or suggest intermittently lowering the air-fuel ratio in the exhaust system by

intermittently adding fuel to the exhaust, as recited in claim 23 and similarly recited in claims 13, 33 and 34.

(F) Other matters. None.

(G) Results. The Examiner indicated that the Applicant's arguments were persuasive.

#### **IV. Pending Claims**

Independent claims 13, 23, 33, and 34 stand rejected under 35 USC 102(b) as allegedly being anticipated by Kawashima.

Claim 23 recites, *inter alia*, "changing from the normal heating mode to a burn-up heating mode for intermittently lowering the air-fuel ratio in the exhaust system by intermittently adding fuel to the exhaust." Claims 13, 33, and 34 recite similar features.

Kawashima does not disclose or suggest intermittently lowering the air-fuel ratio in the exhaust system by intermittently adding fuel to the exhaust, as recited in claim 23. The Office Action argues that Kawashima discloses these features at column 8, lines 14-49.

Kawashima describes a regeneration device for filter regeneration with a controller for implementing a tri-phasic methodology. (See Fig. 2; col. 2, ll. 10-57). Kawashima states

The controller functions to control the exhaust gas temperature adjustment mechanism in a first phase such that the exhaust gas temperature is raised until the temperature of the filter rises to a predetermined temperature, control the exhaust gas oxygen concentration adjustment mechanism in a second phase following the first phase to cause the oxygen concentration of the exhaust gas to be held at a first target concentration while controlling the exhaust gas temperature adjustment mechanism to cause the temperature of the filter to be maintained at the predetermined temperature, and control the exhaust gas oxygen concentration adjustment mechanism in a third phase following the second phase to cause the oxygen concentration of the exhaust gas to be held at a second target concentration which is higher than the first target concentration while controlling the exhaust gas temperature adjustment mechanism to cause the temperature of the filter to be maintained at the predetermined temperature.

(col. 2, ll. 10-26). With reference to Figs. 6-8, Kawashima further describes the tri-phasic methodology.

Although, the Kawashima controller functions to control the exhaust gas temperature adjustment mechanism and exhaust gas oxygen concentration adjustment mechanism,

Kawashima does not lower the air-fuel ratio in the exhaust system by intermittently adding fuel to the exhaust, as required by claim 13, 23, 33 and 34. In this regard, the Applicants disclose the relevance of the intermittent addition of fuel throughout the specification. For example, the Applicants state

the ECU 70 sets the amount of fuel repeatedly added from the adding valve 68, the period of fuel addition, and the period when fuel is not added. In this manner, the ECU 70 controls the air-fuel ratio of the exhaust so as to realize the activated oxygen state and exhaust temperatures thci and thco capable of burning up the PM accumulated in the filter 38a and the NOx storage reduction catalyst 36a.

(paragraph [0068]).

As argued during the September 1 personal interview, the Kawashima controller cannot reasonably be considered to “intermittently” add fuel to the exhaust.

Kawashima also does not teach that when the estimated accumulation amount of particulate matter is at or below a threshold value p, the third phase starts. Rather, Kawashima teaches mode changing based on bed temperature. More specifically, Kawashima describes in col. 5, lines 36-39 that “[t]he point in time at which the bed temperature reaches the target bed temperature iTbed is the end timing of the first phase, as shown in FIG. 22D.” In Kawashima, the first phase ends (i.e., the second or third phase starts) when the bed temperature reaches the target bed temperature iTbed. Furthermore, Kawashima teaches use of an elapsed time T in col. 7, lines 12 to 27. The elapsed time T is measured in order to obtain the target bed temperature iTbed. (See col. 7, lines 44 to 53). Accordingly, in Kawashima, the second or third phase does not start when the estimated accumulation amount of particulate matter is at or below a threshold value p unless the measured bed temperature reaches the target bed temperature iTbed.

The Applicant respectfully submits that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

In addition, the Applicant respectfully submits that none of the other references cited identify a reason for modifying Kawashima in the manner as claimed by the Applicant. The Applicant respectfully submits that, as discussed in *KSR Int’l Co. v. Teleflex, et al.*, No. 04-1350,

(U.S. Apr. 30, 2007), it remains necessary to identify the reason why a person of ordinary skill in the art would have been prompted to combine alleged prior art elements in the manner as claimed by the Applicant. Accordingly, claims 13, 23, 33, and 34 are also not rendered obvious by Kawashima in view of the other cited references.

The Applicant respectfully submits that, for at least these reasons, claims 13, 23, 33, and 34, as well as their dependent claims, are patentable over the cited references. Based on the agreement reached with the Examiner during the personal interview, the Applicant understands that the current rejections will be withdrawn.

**V. Conclusion**

In light of the above discussion, the Applicant respectfully submits that the present application is in all aspects in allowable condition, and earnestly solicits favorable reconsideration and early issuance of a Notice of Allowance. The Examiner is invited to contact the undersigned at (202) 220-4420 to discuss any matter concerning this application. The Office is authorized to charge any fees related to this communication to Deposit Account No. 11-0600.

Respectfully submitted,

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